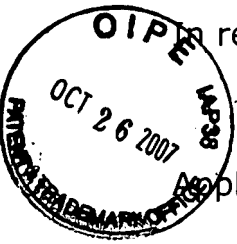


TJW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re the Application of:

Kazunari KURITA et al.

Art Unit: 1722

Application No.: 10/576,321✓

Examiner: Chaet, M.

Filed: 04/19/2006

Attorney Dkt. No.: 12054-0059

For: PROCESS FOR PRODUCING HIGH-RESISTANCE SILICON WAFERS AND
PROCESS FOR PRODUCING EPITAXIAL WAFERS AND SOI WAFERS (AS
AMENDED)

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants request reconsideration of the rejections made in the Office
Action dated July 26, 2007.

In review, the Examiner has made two obviousness-type double
patenting rejections and one prior art rejection.

The two double patenting rejections are traversed under the headings of
the cited co-pending applications. The prior art rejection is also traversed
under its own heading.

Co-pending Application 10/512,405

Claims 1, 2, and 5 are rejected based on obviousness-type double
patenting over claims 7-12 and 17 of co-pending application 10/512,405 (the

'405 application). In making this rejection, the Examiner notes that the claims of the '405 application are directed to a method of producing high-resistance silicon wafers having a certain resistivity, a certain oxygen concentration, a certain carbon concentration, a final oxygen concentration after a particular heat treatment, and a certain defect density. Important to note here is that these claims define a heat treatment regimen as follows: 700-900 °C for 5 hours or more, 950-1050 °C for 10 hours or more, and 1100-1250 °C for 1-5 hours.

The Examiner notes that claims 1, 2, and 5 are also directed to a method of making high-resistance silicon wafers having a certain resistivity, oxygen concentration, carbon concentration, and final oxygen concentration after a particular heat treatment. The heat treatment described in claims 1, 2, and 5 is 700-900 °C for 5 hours or more, 850-1050 °C for 0.5 to 5 hours **with a heat up of 0.5-10 °C/minute**, 1150 °C or above for 1-2 hours, and then 1000-1150 °C for 2-10 hours.

In the rejection, it is tacitly admitted that the heat-up rate is not found in the co-pending application. Nevertheless and without citation to any other prior art or authority, the Examiner concludes that "it would have been obvious to one of ordinary skill in at the time of the invention to include a grown-in defect amount to prevent contamination and to employ a heat-up rate of about 5-10 °C/minute to quickly increase temperature." It should be noted here that the Examiner apparently meant "0.5-10 °C/minute" as the heat-up rate, since this is what is recited in the claims.

This rejection is flawed since the rationale for concluding obviousness lacks any support whatsoever. The bases for the reasoning of "to prevent contamination" and "quickly increase temperature" is not linked to anything. There is no citation to any prior art or any basis from which this conclusion can be based. In fact, the Examiner appears to be speculating as to a reason for modifying the process disclosed in the '405 application and this speculation is insufficient to support an obvious-type double patenting rejection.

On this point, the selection of the heat-up rate is not just an arbitrary designation by the inventors. To the contrary, there are specific reasons for the range of heat-up rate and these are explained in paragraph [0058-0062] of the specification. The inventors have discovered that controlling the heat-up rate between the claimed values produces improvements in the growth of minute precipitation nuclei. If the heat-up rate is too high, i.e., greater than 10 °C/minute, the growth of the minute precipitation nuclei is inhibited and the density of precipitation nuclei cannot be increased. If the heat-up rate is too low, i.e., less than 0.5 °C/minute, the period for heat-up is too long and costs of processing are severely impacted. Please see paragraph [0062] in particular on these limits.

When considering the instant application, it is clear that the invention found therein is not merely an obvious modification of the invention found in the '405 application. To the contrary, the instant application is an entirely different invention and it cannot be concluded that just because there is common subject matter in the form of a high resistivity silicon wafer with

defined levels of carbon and oxygen concentration that the advancement with respect to the heat-up rate for the instant application is therefore obvious. The invention provides a definite improvement in the field of high resistivity silicon wafers when control of the heat-up rate is exercised. This control cannot be considered an obvious modification of the process of the '405 application for the simple reason that there is no proper rationale to support the bald conclusion that it would be obvious to control the heat-up rate within the claimed range. The Examiner's reasons are speculative at best and not grounded in fact. Thus, they cannot be used to support the contention of obviousness and the requirement for filing of a Terminal Disclaimer to overcome the rejection. Therefore, the rejection of claims 1, 2, and 5 based on the '405 application should be withdrawn.

Applicants also contend that the heating treating regimen of claims 1, 2, and 5 of the instant application is not same or obvious based on the '405 application heat treatment. Therefore, the Examiner must also have a reason to allege that the claimed heat treating regimen is obvious. No such reason is proffered in the rejection and this is another reason that the rejection is improper must be withdrawn.

Co-pending Application 10/519,837

In this rejection, claims 1 and 2 are rejected as being obvious based on claims 1, 5-8, and 10 of co-pending Application 10/519,837, (the '837 application). Here, the Examiner contends that the '837 application teaches a

high resistance silicon wafer having a particular oxygen concentration, carbon concentration, remaining oxygen concentration after heat treatment, a heat treatment at 1000 °C or higher, an epitaxial wafer, and a SOI wafer which is bonded or a SIMOX wafer.

The Examiner cites the instant application as claiming a high resistance silicon wafer having a particular oxygen concentration, carbon concentration, remaining oxygen concentration, and certain heat treatment steps. These heat treatment steps include heating at 700-900 °C for 5 hours or more, 850-1050 °C for 0.5 to 5 hours **with a heat up of 0.5-10 °C/minute**, heating at 1150 °C or above for 1-2 hours, and then heating at 1000-1150 °C for 2-10 hours.

The Examiner uses the same reasoning to reject claims 1 and 2 over the '837 application as used in the previously-discussed double patenting rejection. That is, "it would have been obvious to one of ordinary skill in at the time of the invention to include a grown-in defect amount to prevent contamination and to employ a heat-up rate of about 5-10 °C/minute to quickly increase temperature."

This stance is defective for the same reasons as set out above with respect to the '405 application. The Examiner has not provided the proper rationale for concluding obviousness and the rejection based on the '837 application is speculative at best and must be withdrawn. As with the rejection based on the '405 application, the Examiner cites no prior art or provides any basis whatsoever to come to the conclusion of obviousness.

Lacking such a basis, the rejection cannot stand.

As in the other obviousness-type double patenting rejection, the Examiner has overlooked that fact that the heat treating of claims 1 and 2 of the instant application is not the same as that described in the '837 application. The Examiner has failed to address this difference when making the obviousness contention and this failure taints the rejection and requires its withdrawal.

United States Published Patent Application No. 2003/0008 to Falster and
United States Published Patent Application No. 2005/0250349 to Sadamitsu et
al. (Sadamitsu)

The Examiner rejects claims 1-8 based on the combination of Falster and Sadamitsu. This rejection is believed to be flawed since Sadamitsu is not valid prior art against the instant application.

In review, Applicants are entitled to claim priority back to October 21, 2003. The earliest date of publication of Falster is January 22, 2004, which is before Applicants earliest priority date. Applicants are filing a verified translation of Japanese priority application, which will support the claims as presently filed. This translation will remove Sadamitsu as valid prior art.

Since the Examiner has already admitted that Falster alone is insufficient to support the rejection under 35 U.S.C. § 103(a), removing Sadamitsu as valid prior art means that the rejection based on 35 U.S.C. § 103(a) must be either withdrawn or remade with other prior art.

SUMMARY

The two double patenting rejections are overcome on the basis that the reasoning for concluding obviousness is improper. The rejection based on the combination of Falster and Sadamitsu will be overcome upon submission of the verified translation of the Japanese priority document.

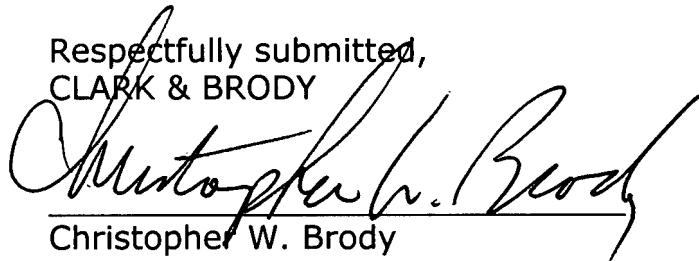
Upon receipt of the translated Japanese priority document, the Examiner is requested to examine this application and pass all pending claims onto issuance.

If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

Please charge any fee deficiencies to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY

A handwritten signature in black ink, appearing to read "Christopher W. Brody", is written over a horizontal line.

Christopher W. Brody
Registration No. 33,613

Customer No. 22902

1090 Vermont Avenue, N.W., Suite 250
Washington DC 20005
Telephone: 202-835-1111
Facsimile: 202-835-1755
Docket No.: 12054-0059
Date: October 26, 2007